5.3 AIR QUALITY

This section focuses on potential short-term air quality impacts associated with project construction activities, and long-term local and regional air quality impacts associated with the project operation. Information in this section is based primarily on the Aerometric Data Analysis and Measurement System (ADAM) Air Quality Data Statistics (California Air Resources Board [CARB] 2009 through 2011); the *CEQA Air Quality Handbook* prepared by the South Coast Air Quality Management District (SCAQMD), April 1993 (as revised through November 1993); the *SCAQMD Final 2012 Air Quality Management Plan* (December 7, 2012); and the *Brookhurst Street/Adams Avenue Improvement Project Traffic Impact Analysis* (*Traffic Impact Analysis*) (April 11, 2013), prepared by RBF Consulting; refer to Appendix 13.4, *Air Quality and Greenhouse Gas Data*, for the assumptions used in this analysis.

5.3.1 EXISTING SETTING

SOUTH COAST AIR BASIN

Geography

The City of Huntington Beach is located in the South Coast Air Basin (Basin), a 10,743-square mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino and San Jacinto Mountains to the north and east. The Basin includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area of Riverside County.

The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography), as well as man-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall and topography all affect the accumulation and/or dispersion of air pollutants throughout the Basin.

Climate

The general region lies in the semipermanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. The climate consists of a semiarid environment with mild winters, warm summers, moderate temperatures and comfortable humidity. Precipitation is limited to a few winter storms. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms or Santa Ana winds.

The average annual temperature varies little throughout the Basin, averaging 75 degrees Fahrenheit (°F). However, with a less-pronounced oceanic influence, the eastern inland portions of the Basin show greater variability in annual minimum and maximum temperatures. All portions of the Basin have had recorded temperatures over 100°F in recent years.

Although the Basin has a semi-arid climate, the air near the surface is moist because of the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the Basin by offshore winds, the ocean effect is dominant. Periods with heavy fog are frequent, and low stratus clouds, occasionally referred to as "high fog," are a characteristic climate feature. Annual average relative humidity is 70 percent at the coast and 57 percent in the eastern part of the Basin. Precipitation in the Basin is typically 9 to 14 inches annually and is rarely in the form of snow or hail

due to typically warm weather. The frequency and amount of rainfall is greater in the coastal areas of the Basin.

The height of the inversion is important in determining pollutant concentration. When the inversion is approximately 2,500 feet above sea level, the sea breezes carry the pollutants inland to escape over the mountain slopes or through the passes. At a height of 1,200 feet, the terrain prevents the pollutants from entering the upper atmosphere, resulting in a settlement in the foothill communities. Below 1,200 feet, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal basin. Usually, inversions are lower before sunrise than during the day. Mixing heights for inversions are lower in the summer and more persistent, being partly responsible for the high levels of ozone (O_3) observed during summer months in the Basin. Smog in southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods of time, allowing them to form secondary pollutants by reacting with sunlight. The Basin has a limited ability to disperse these pollutants due to typically low wind speeds.

The area in which the project is located offers clear skies and sunshine, yet is still susceptible to air inversions. This traps a layer of stagnant air near the ground where it is further loaded with pollutants. These inversions cause haziness, which is caused by moisture, suspended dust and a variety of chemical aerosols emitted by trucks, automobiles, furnaces and other sources.

LOCAL AMBIENT AIR QUALITY

Air Quality Monitoring Stations

The SCAQMD monitors air quality at 37 monitoring stations throughout the Basin. Each monitoring station is located within a Source Receptor Area (SRA). The communities within an SRA are expected to have similar climatology and ambient air pollutant concentrations. The proposed project is in the City of Huntington Beach, which is located in SRA 18 (North Coastal Orange County). The monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations.

Pollutants Measured

The following air quality information briefly describes the various types of pollutants monitored at the Costa Mesa Monitoring Station (nearest monitoring station to the project site with CO, O_3, and NO_2 data) and the Anaheim Monitoring Station (next closest monitoring station to the project site with PM_{10} and $PM_{2.5}$ data). Air quality data from 2009 through 2011 are provided in Table 5.3-1, *Local Air Quality Levels*.

Carbon Monoxide. Carbon monoxide (CO) is an odorless, colorless toxic gas that is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions.

Table 5.3-1
Local Air Quality Levels

Pollutant	Primary Standard		Year	Maximum[1] Concentration	Number of Days State/Federal Std. Exceeded
	California	Federal			
Carbon Monoxide (CO) (1-Hour)[2]	20 ppm For 1 hour	35 ppm For 1 hour	2009 2010 2011	2.70 ppm 2.44 2.91	0/0 0/0 0/0
Carbon Monoxide (CO) (8-Hour)[2]	9.0 ppm for 8 hours	9.0 ppm for 8 hours	2009 2010 2011	2.16 ppm 2.09 2.22	0/0 0/0 0/0
Ozone (O_3) (1-Hour) [2]	0.09 ppm for 1 hour	NA[4]	2009 2010 2011	0.087 ppm 0.097 0.093	0/0 1/0 0/0
Ozone (O_3) (8-Hour) [2]	0.07ppm for 8 hours	0.075 ppm for 8 hours	2009 2010 2011	0.072 ppm 0.076 0.077	3/0 2/1 2/1
Nitrogen Dioxide (NO_2) [2]	0.18 ppm for 1 hour	0.053 ppm annual average	2009 2010 2011	0.065 ppm 0.070 0.061	0/NA 0/NA 0/NA
Particulate Matter (PM_{10})[3,5,6]	50 µg/m^3 for 24 hours	150 µg/m^3 for 24 hours	2009 2010 2011	97.4 µg/m^3 43.0 53.0	1/0 0/0 2/0
Fine Particulate Matter ($PM_{2.5}$)[3,6]	No Separate State Standard	35 µg/m^3 for 24 hours	2009 2010 2011	64.5 µg/m^3 31.7 39.2	NM/5 NM/0 NM/2

ppm = parts per million
µg/m^3 = micrograms per cubic meter
NM = Not Measured
PM_{10} = particulate matter 10 microns in diameter or less
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
NA = Not Applicable

Notes:
1. Maximum concentration is measured over the same period as the California Standard.
2. Measurements taken at the Costa Mesa monitoring station located at 2850 Mesa Drive East, Costa Mesa, California.
3. Measurements taken at the Anaheim monitoring station, which is the next closest monitoring site (located at 1630 Pampas Lane, Anaheim, California) to the project location with PM_{10} and $PM_{2.5}$ data.
4. The U.S. Environmental Protection Agency revoked the Federal 1-hour Standard in June of 2005.
5. PM_{10} exceedances are based on state thresholds established prior to amendments adopted on June 20, 2002.
6. PM_{10} and $PM_{2.5}$ exceedances are derived from the number of samples exceeded, not days.

Source: California Air Resources Board, *ADAM Air Quality Data Statistics*, http://www.arb.ca.gov/adam/welcome.html

CO replaces oxygen in the body's red blood cells. Individuals with a deficient blood supply to the heart, patients with diseases involving heart and blood vessels, fetuses (unborn babies) and patients with chronic hypoxemia (oxygen deficiency), as seen in high altitudes are most susceptible to the adverse effects of CO exposure. People with heart disease are also more susceptible to developing chest pains when exposed to low levels of CO. Exposure to high levels of CO can slow reflexes and cause drowsiness, and result in death in confined spaces at very high concentrations. The State and Federal standard for CO is 9.0 ppm.

Nitrogen Dioxide. Nitrogen oxides (NO_X) are a family of highly reactive gases that are a primary precursor to the formation of ground-level O_3, and react in the atmosphere to form acid rain. NO_2 (often used interchangeably with NO_X) is a reddish-brown gas that can cause breathing difficulties at high levels. Peak readings of NO_2 occur in areas that have a high concentration of combustion sources (e.g., motor vehicle engines, power plants, refineries and other industrial operations).

NO_2 can irritate and damage the lungs, and lower resistance to respiratory infections such as influenza. The health effects of short-term exposure are still unclear. However, continued or frequent exposure to NO_2 concentrations that are typically much higher than those normally found in the ambient air, may increase acute respiratory illnesses in children and increase the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO_2 may aggravate eyes and mucus membranes and cause pulmonary dysfunction.

For NO_2, the Basin is designated as being in attainment under both State and Federal standards. The NO_2 ambient air quality standard was amended on February 22, 2007 to lower the State 1-hour standard to 0.18 ppm and establish a new Federal annual standard of 0.053 ppm.

Ozone. Ozone (O_3) occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. The troposphere extends approximately 10 miles above ground level, where it meets the second layer, the stratosphere. The stratospheric (the "good" O_3 layer) extends upward from about 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays.

"Bad" O_3 is a photochemical pollutant, and needs reactive organic compounds (ROGs), NO_X, and sunlight to form; therefore, ROGs and NO_X are O_3 precursors. To reduce O_3 concentrations, it is necessary to control the emissions of these O_3 precursors. Significant O_3 formation generally requires an adequate amount of precursors in the atmosphere and a period of several hours in a stable atmosphere with strong sunlight. High O_3 concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

While O_3 in the upper atmosphere (stratosphere) protects the earth from harmful ultraviolet radiation, high concentrations of ground-level O_3 (in the troposphere) can adversely affect the human respiratory system and other tissues. O_3 is a strong irritant that can constrict the airways, forcing the respiratory system to work hard to deliver oxygen. Individuals exercising outdoors, children, and people with pre-existing lung disease such as asthma and chronic pulmonary lung disease are considered to be the most susceptible to the health effects of O_3. Short-term exposure (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in aggravated respiratory diseases such as emphysema, bronchitis and asthma, shortness of breath, increased susceptibility to infections, inflammation of the lung tissue, increased fatigue, as well as chest pain, dry throat, headache and nausea.

Coarse Particulate Matter (PM_{10}). PM_{10} refers to suspended particulate matter which is smaller than 10 microns or ten one-millionths of a meter. PM_{10} arises from sources such as road dust, diesel soot, combustion products, construction operations and dust storms. PM_{10} scatters light and significantly reduces visibility. In addition, these particulates penetrate into lungs and can potentially damage the respiratory tract. On June 19, 2003 CARB adopted amendments to the statewide 24-hour particulate matter standards based upon requirements set forth in the Children's Environmental Health Protection Act (Senate Bill 25).

Fine Particulate Matter ($PM_{2.5}$). Due to recent increased concerns over health impacts related to fine particulate matter (particulate matter 2.5 microns in diameter or less), both State and Federal $PM_{2.5}$ standards have been created. Particulate matter impacts primarily affect infants, children, the elderly and those with pre-existing cardiopulmonary disease. In 1997, the U.S. Environmental Protection Agency (EPA) announced new $PM_{2.5}$ standards. Industry groups challenged the new standard in

court and the implementation of the standard was blocked. However, upon appeal by the EPA, the U.S. Supreme Court reversed this decision and upheld the EPA's new standards.

On January 5, 2005, the EPA published a Final Rule in the Federal Register that designates the Basin as a nonattainment area for Federal $PM_{2.5}$ standards. On June 20, 2002, CARB adopted amendments for statewide annual ambient particulate matter air quality standards. These standards were revised/established due to increasing concerns by CARB that previous standards were inadequate, as almost everyone in California is exposed to levels at or above the current State standards during some parts of the year, and the statewide potential for significant health impacts associated with particulate matter exposure was determined to be large and wide-ranging.

Sulfur Dioxide. Sulfur dioxide (SO_2) is a colorless, irritating gas with a rotten egg smell; it is formed primarily by the combustion of sulfur-containing fossil fuels. Sulfur dioxide is often used interchangeably with sulfur oxides (SO_X) and lead (Pb). Exposure of a few minutes to low levels of SO_2 can result in airway constriction in some asthmatics. In asthmatics, increase in resistance to air flow, as well as reduction in breathing capacity leading to severe breathing difficulties, are observed after acute exposure to SO_2.

SENSITIVE RECEPTORS

Sensitive populations are more susceptible to the effects of air pollution than is the general population. Sensitive populations (sensitive receptors) that are in proximity to localized sources of toxics and CO are of particular concern. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. The following types of people are most likely to be adversely affected by air pollution, as identified by CARB: children under 14, elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. Locations that may contain a high concentration of these sensitive population groups are called sensitive receptors and include residential areas, hospitals, day-care facilities, elder-care facilities, elementary schools and parks.

Existing sensitive receptors located in the project vicinity include single and multi-family residential homes, schools, parks, and places of worship. Sensitive receptors are referenced in Table 5.3-2, *Sensitive Receptors*.

5.3.2 REGULATORY FRAMEWORK

Regulatory oversight for air quality in the Basin rests with the SCAQMD at the regional level, CARB at the State level and the EPA Region IX office at the Federal level.

U.S. ENVIRONMENTAL PROTECTION AGENCY

The EPA is responsible for implementing the Federal Clean Air Act (FCAA), which was first enacted in 1955 and amended numerous times after. The FCAA established Federal air quality standards known as the National Ambient Air Quality Standards (NAAQS). These standards identify levels of air quality for "criteria" pollutants that are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect the public health and welfare. The criteria pollutants are O_3, CO, NO_2 (which is a form of nitrogen oxides [NO_X]), SO_2 (which is a form of sulfur oxides [SO_x]), particulate matter less than 10 and 2.5

microns in diameter (PM_{10} and $PM_{2.5}$, respectively) and Pb; refer to Table 5.3-3, *National and California Ambient Air Quality Standards*.

Table 5.3-2
Sensitive Receptors

Type	Name	Distance from Project Site (miles)	Direction from Project Site
Residential	Residential Uses	Adjoining	North
		Adjoining	South
		Adjoining	East
		Adjoining	West
Schools/Churches	Isojiro Oka Elementary School	0.24	Northwest
	Pegasus School	0.36	East
	Adams Elementary School	0.98	East
	Preschool Academy Huntington Beach	0.30	South
	Huntington Beach Christian School	0.66	Southeast
	Ralph E. Hawes Elementary School	0.30	Southeast
	Isaac L. Sowers Elementary School	0.80	Southeast
	Sts. Simon and Jude School (Sts. Simon and Jude Church)	0.74	Southeast
	Christ Presbyterian Preschool (Christ Presbyterian Church)	0.70	West
	William T. Newland School	0.98	West
	Samuel E. Talbert Middle School	0.82	West
Parks	Bushard Park	0.27	Northwest
	Arevalos Park	0.44	East
	Estancia Park	0.56	East
	Costa Mesa Golf Course	0.96	East
	Fairview Park	0.43	Southeast
	Lebard Park	0.30	South
	Burke Park	0.57	Southeast
	Hawes Park	0.28	Southeast
	Sowers Park	0.80	Southeast
	Wardlow Park	0.73	West
	Lagenbeck Park	0.94	Northwest

Source: Google Earth, 2013.

California Air Resources Board

CARB administers the air quality policy in California. The California Ambient Air Quality Standards (CAAQS) were established in 1969 pursuant to the Mulford-Carrell Act. These standards, included with the NAAQS in Table 5.3-3, are generally more stringent and apply to more pollutants than the NAAQS. In addition to the criteria pollutants, CAAQS have been established for visibility reducing particulates, hydrogen sulfide and sulfates. The CCAA, which was approved in 1988, requires that

Table 5.3-3
National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California[1]		Federal[2]	
		Standard[3]	Attainment Status	Standards[3,4]	Attainment Status
Ozone (O_3)	1 Hour	0.09 ppm (180 μg/m³)	**Nonattainment**	N/A	N/A[5]
	8 Hours	0.070 ppm (137 μg/m³)	N/A	0.075 ppm (147 μg/m³)	**Extreme Nonattainment**
Particulate Matter (PM_{10})	24 Hours	50 μg/m³	**Nonattainment**	150 μg/m³	**Serious Nonattainment**
	Annual Arithmetic Mean	20 μg/m³	**Nonattainment**	N/A	**Serious Nonattainment**
Fine Particulate Matter ($PM_{2.5}$)	24 Hours	No Separate State Standard		35 μg/m³	**Nonattainment**
	Annual Arithmetic Mean	12 μg/m³	**Nonattainment**	15.0 μg/m³	**Nonattainment**
Carbon Monoxide (CO)	8 Hours	9.0 ppm (10 mg/m³)	Attainment	9 ppm (10 mg/m³)	Unclassified/ Attainment/Maintenance
	1 Hour	20 ppm (23 mg/m³)	Attainment	35 ppm (40 mg/m³)	Unclassified/ Attainment/Maintenance
Nitrogen Dioxide (NO_2)[5]	Annual Arithmetic Mean	0.030 ppm (57 μg/m³)	**Nonattainment**	0.053 ppm (100 μg/m³)	Attainment/Maintenance
	1 Hour	0.18 ppm (339 μg/m³)	**Nonattainment**	100 ppb (188 μg/m³)	Attainment/Maintenance
Lead (Pb)[7,8]	30 days Average	1.5 μg/m³	Attainment	N/A	N/A
	Calendar Quarter	N/A	N/A	1.5 μg/m³	Attainment
	Rolling 3-Month Average	N/A	N/A	0.15 μg/m³	Attainment
Sulfur Dioxide (SO_2)[6]	24 Hours	0.04 ppm (105 μg/m³)	Attainment	0.14 ppm (for certain areas)	Attainment
	3 Hours	N/A	N/A	N/A	Attainment
	1 Hour	0.25 ppm (655 μg/m³)	Attainment	75 ppb (196 μg/m³)	N/A
	Annual Arithmetic Mean	N/A	N/A	0.30 ppm (for certain areas)	Attainment
Visibility-Reducing Particles[9]	8 Hours (10 a.m. to 6 p.m., PST)	Extinction coefficient = 0.23 km@<70% RH	Unclassified	**No Federal Standards**	
Sulfates	24 Hour	25 μg/m³	Attainment		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 μg/m³)	Unclassified		
Vinyl Chloride[7]	24 Hour	0.01 ppm (26 μg/m³)	N/A		

μg/m³ = micrograms per cubic meter; ppm = parts per million; ppb = parts per billion; km = kilometer(s); RH = relative humidity; PST = Pacific Standard Time; N/A = Not Applicable

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m³ is equal to or less than one. For $PM_{2.5}$, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
5. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 ppm and 0.100 ppm, respectively.
6. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
7. CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
8. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 μg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
9. In 1989, CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: California Air Resources Board and U.S. Environmental Protection Agency, June 7, 2012.

each local air district prepare and maintain an Air Quality Management Plan (AQMP) to achieve compliance with CAAQS. These AQMP's also serve as the basis for preparation of the State Implementation Plan (SIP) for the State of California.

Like the EPA, CARB also designates areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data show that a state standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a state standard, and are not used as a basis for designating areas as nonattainment.

Under the CCAA, the Basin is designated as a nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The Basin is designated as an attainment area for CO, NO_2, SO_2, and Pb; refer to Table 5.3-3. Similar to the FCAA, all areas designated as nonattainment under the CCAA are required to prepare plans showing how the area would meet the CAAQS by its attainment dates.

South Coast Air Quality Management District

The SCAQMD is one of 35 air quality management districts that have prepared AQMP's to accomplish a five-percent annual reduction in emissions. The *2012 Air Quality Management Plan* (*2012 AQMP*) relies on a multi-level partnership of governmental agencies at the Federal, State, regional, and local level. The *2012 AQMP* proposes policies and measures to achieve Federal and State standards for improved air quality in the Basin and those portions of the Salton Sea Air Basin (formerly named the Southeast Desert Air Basin) that are under SCAQMD jurisdiction.

The *2012 AQMP* includes new information on key elements such as:

- Current air quality;
- Improved emission inventories, especially significant increase in mobile source emissions;
- An overall control strategy comprised of: Stationary and Mobile Source Control Measures, SCAQMD, State and Federal Stationary and Mobile Source Control Measures, and the Southern California Association of Governments Regional Transportation Strategy and Control Measures;
- New attainment demonstration for $PM_{2.5}$ and O_3;
- Milestones to the Federal Reasonable Further Progress Plan; and
- Preliminary motor vehicle emission budgets for transportation conformity purposes.

In addition to the *2012 AQMP* and its rules and regulations, the SCAQMD published the *CEQA Air Quality Handbook*. The SCAQMD *CEQA Air Quality Handbook* provides guidance to assist local government agencies and consultants in developing the environmental documents required by CEQA. With the help of the *CEQA Air Quality Handbook*, local land use planners and other consultants are able to analyze and document how proposed and existing projects affect air quality and should be able to fulfill the requirements of the CEQA review process. The SCAQMD is in the process of developing an *Air Quality Analysis Guidance Handbook* to replace the current *CEQA Air Quality Handbook* approved by the SCAQMD Governing Board in 1993.

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino and Imperial Counties and serves as a forum for regional issues relating to transportation, the economy, community development and the environment. SCAG serves as the Federally designated metropolitan planning organization for the Southern California region and is the largest metropolitan planning organization in the United States. With respect to air quality planning, SCAG has prepared the Regional Comprehensive Plan and Guide for the region, which includes Growth Management and Regional Mobility chapters that form the basis for the land use and transportation control portions of the *2012 AQMP*. SCAG is responsible under the FCAA for determining conformity of projects, plans and programs with the SCAQMD.

5.3.3 IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

Under *CEQA*, the SCAQMD is an expert commenting agency on air quality within its jurisdiction or impacting its jurisdiction. Under the FCAA, the SCAQMD has adopted federal attainment plans for O_3 and PM_{10}. The SCAQMD reviews projects to ensure that they would not: (1) cause or contribute to any new violation of any air quality standard; (2) increase the frequency or severity of any existing violation of any air quality standard; or (3) delay timely attainment of any air quality standard or any required interim emission reductions or other milestones of any federal attainment plan.

The *CEQA Air Quality Handbook* also provides significance thresholds for both construction and operation of projects within the SCAQMD jurisdictional boundaries. Exceedance of the SCAQMD thresholds could result in a potentially significant impact. However, ultimately the lead agency determines the thresholds of significance for impacts. If the project proposes development in excess of the established thresholds, as illustrated in Table 5.3-4, *SCAQMD Emission Thresholds*, a significant air quality impact may occur and additional analysis is warranted to fully assess the significance of impacts.

Table 5.3-4
SCAQMD Emissions Thresholds

Phase	Pollutant (lbs/day)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Construction	75	100	550	150	150	55
Operational	55	55	550	150	150	55

Source: South Coast Air Quality Management District, *CEQA Air Quality Handbook,* November 1993.

LOCALIZED THRESHOLDS OF SIGNIFICANCE

Localized Significance Thresholds (LSTs) were developed in response to the SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the *Final Localized Significance Threshold Methodology* (revised July 2008) for guidance. The LST methodology

assists lead agencies in analyzing localized impacts associated with project-specific level proposed projects. The SCAQMD provides the LST lookup tables for one, two, and five acre projects emitting CO, NO_X, particulate matter less than 10 microns in aerodynamic diameter (PM_{10}), and particulate matter less than 2.5 microns in aerodynamic diameter ($PM_{2.5}$). The LST methodology and associated mass rates are not designed to evaluate localized impacts from mobile sources traveling over the roadways. The SCAQMD recommends that any project over five acres should perform air quality dispersion modeling to assess impacts to nearby sensitive receptors.

CARBON MONOXIDE THRESHOLDS

In addition, the significance of localized project impacts depends on whether ambient CO levels in the vicinity of the project are above or below State and Federal CO standards. If the project causes an exceedance of either the state one-hour or eight-hour CO concentrations, the project would be considered to have a significant local impact. If ambient levels already exceed a State or Federal standard, then project emissions would be considered significant if they increase one-hour CO concentrations by 1.0 ppm or more, or eight-hour CO concentrations by 0.45 ppm or more. Refer to Table 5.3-5, *Federal and State Carbon Monoxide Standards*, for the applicable standards.

Table 5.3-5
Federal and State Carbon Monoxide Standards

Jurisdiction	Averaging Time	Carbon Monoxide (CO) Standard (parts per million)
Federal	1 Hour	35
	8 Hours	9
State	1 Hour	20
	8 Hours	9

Source: California Air Resources Board, *Ambient Air Quality Standards*, June 7, 2012, http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

CUMULATIVE EMISSIONS

The SCAQMD's *2012 AQMP* was prepared to accommodate growth, meet state and federal air quality standards, and minimize the fiscal impact that pollution control measures have on the local economy. According to the SCAQMD *CEQA Air Quality Handbook*, project-related emissions that fall below the established construction and operational thresholds should be considered less than significant unless there is pertinent information to the contrary.

If a project exceeds these emission thresholds, the SCAQMD *CEQA Air Quality Handbook* states that the significance of a project's contribution to cumulative impacts should be determined based on whether the rate of growth in average daily trips exceeds the rate of growth in population.

CEQA THRESHOLDS

The environmental analysis in this section is patterned after the Initial Study Checklist recommended by the *CEQA Guidelines*, as amended, and used by the City of Huntington Beach in its environmental review process. The Initial Study Checklist includes questions relating to air quality.

The issues presented in the Initial Study Checklist have been utilized as thresholds of significance in this section. Accordingly, a project may create a significant environmental impact if it causes one or more of the following to occur:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable Federal or State ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations; and
- Create objectionable odors affecting a substantial number of people (refer to Section 10.0, *Effects Found Not To Be Significant*).

Based on these standards and thresholds, the effects of the proposed project have been categorized as either a "less than significant impact" or a "potentially significant impact." Mitigation measures are recommended for potentially significant impacts. If a potentially significant impact cannot be reduced to a less than significant level through the application of mitigation, it is categorized as a significant unavoidable impact.

5.3.4 IMPACTS AND MITIGATION MEASURES

SHORT-TERM (CONSTRUCTION) AIR EMISSIONS

- **SHORT-TERM CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE PROPOSED PROJECT WOULD NOT RESULT IN SIGNIFICANT AIR POLLUTANT EMISSION IMPACTS UPON IMPLEMENTATION OF IDENTIFIED MITIGATION.**

Impact Analysis: The project proposes improvements to the Brookhurst Street/Adams Avenue intersection. Short-term air quality impacts are predicted to occur during earthwork and construction operations associated with implementation of the proposed project. Temporary air emissions would result from the following activities:

- Particulate (fugitive dust) emissions from earthwork and building construction; and
- Exhaust emissions from the construction equipment and the motor vehicles of the construction crew.

Construction activities associated with the proposed project would include demolition, site preparation/grading, and paving. Construction activities would occur over approximately six months, and would disturb approximately 10 acres. Site preparation/grading would require approximately 2,000 cubic yards of imported soil and 7,700 cubic yards of exported material. Approximately eight acres of paving would occur, assuming the project would re-pave the entire

roadway width along the length of the project limits. The analysis of daily construction emissions from construction has been prepared utilizing the California Emissions Estimator Model (CalEEMod). Refer to Appendix 13.4, *Air Quality and Greenhouse Gas Data*, for the CalEEMod modeling inputs and results. Table 5.3-6, *Short-Term Construction Emissions*, presents the anticipated unmitigated and mitigated daily short-term construction emissions per construction phase.

Table 5.3-6
Short-Term Construction Emissions

Emissions Source	Emissions (pounds per day)[1]					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Total Unmitigated Emissions	5.74	41.12	32.44	0.07	36.69	5.34
SCAQMD Significance Thresholds	75	100	500	150	150	55
Thresholds Exceeded?	***No***	***No***	***No***	***No***	***No***	***No***
Total Mitigated Emissions[2]	5.74	41.12	32.44	0.07	25.42	3.25
SCAQMD Significance Thresholds	75	100	500	150	150	55
Thresholds Exceeded After Mitigation?	***No***	***No***	***No***	***No***	***No***	***No***

Notes:
1. Emissions calculated using the CalEEMod model.
2. The reduction/credits for construction emission mitigations are based on mitigation included in the CalEEMod model and as required by the SCAQMD (Rule 403). The mitigation includes the following: replace ground cover on disturbed areas quickly, water exposed surfaces two times daily, and proper loading/unloading of mobile and other construction equipment.

Refer to Appendix 13.4, *Air Quality and Greenhouse Gas Data*, for assumptions used in this analysis.

Fugitive Dust Emissions

Construction activities are a source of fugitive dust (PM_{10} and $PM_{2.5}$) emissions that may have a substantial, temporary impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the project area. Fugitive dust emissions are associated with land clearing, ground excavation, cut-and-fill, and truck travel on unpaved roadways (including demolition as well as construction activities). Fugitive dust emissions vary substantially from day to day, depending on the level of activity, specific operations and weather conditions. Fugitive dust from demolition, grading, and construction is expected to be short-term and would cease upon project completion. Additionally, most of this material is inert silicates, rather than the complex organic particulates released from combustion sources, which are more harmful to health.

Dust (larger than 10 microns) generated by such activities usually becomes more of a local nuisance than a serious health problem. Of particular health concern is the amount of PM_{10} (particulate matter smaller than 10 microns) generated as a part of fugitive dust emissions. PM_{10} poses a serious health hazard alone or in combination with other pollutants. Fine Particulate Matter ($PM_{2.5}$) is mostly produced by mechanical processes. These include automobile tire wear, industrial processes such as cutting and grinding, and re-suspension of particles from the ground or road surfaces by wind and human activities such as construction or agriculture. $PM_{2.5}$ is mostly derived from combustion sources, such as automobiles, trucks, and other vehicle exhaust, as well as from stationary sources. These particles are either directly emitted or are formed in the atmosphere from the combustion of gases such as NO_X and SO_X combining with ammonia. $PM_{2.5}$ components from material in the earth's crust, such as dust, are also present, with the amount varying in different locations.

As seen in Table 5.3-6, the project's unmitigated particulate matter emissions are below the SCAQMD thresholds. However, implementation of standard recommended SCAQMD mitigation regarding dust control techniques under Rule 403 (e.g., daily watering, track out requirements, etc.) has been included under Mitigation Measure AQ-1 to further minimize particulate matter impacts. As such, impacts related to PM_{10} and $PM_{2.5}$ would be less than significant.

ROG Emissions

In addition to gaseous and particulate emissions, the application of asphalt and surface coatings creates ROG emissions, which are O_3 precursors. In accordance with the methodology prescribed by the SCAQMD, the ROG emissions associated with paving have been quantified with the CalEEMod model. The material used for lane striping is generally an epoxy based thermoplastic resin with embedded glass beads, which would result in nominal ROG emissions. Based on the Table 5.3-6, the proposed project would not result in an exceedance of ROG emissions during project construction, and therefore are concluded to be a less than significant impact.

Construction Equipment, Worker Vehicle Exhaust, and Hauling

Exhaust emissions from construction activities include emissions associated with the transport of machinery and supplies to and from the project site, emissions produced on-site as the equipment is used, and emissions from trucks hauling soil and materials to and from the site. Emitted pollutants would include ROG, CO, NO_X, SO_X, PM_{10}, and $PM_{2.5}$. Standard SCAQMD regulations, such as maintaining all construction equipment in proper tune, shutting down equipment when not in use for extended periods of time, and implementing SCAQMD Rule 403, would be adhered to. As noted within Table 5.3-6, unmitigated emissions would not exceed the SCAQMD's NO_X thresholds. Therefore, NO_X impacts from construction activities would be less than significant.

Asbestos

Pursuant to guidance issued by the Governor's Office of Planning and Research, State Clearinghouse, Lead Agencies are encouraged to analyze potential impacts related to naturally occurring asbestos. Naturally occurring asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations.

Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties of the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. According to the Department of Conservation Division of Mines and Geology, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report* (August 2000), the proposed project is not located in an area where naturally occurring asbestos is likely to be present. Therefore impacts would be considered less than significant.

Localized Significance Thresholds

Appendix B of the *Final Localized Significance Threshold Methodology* (revised October 2009) provides look-up table references for projects of one, two, and five acres for distances to sensitive receptors of 25, 50, 100, 200, and 500 meters. Based on the SCAQMD guidance on applying CalEEMod to LSTs, the project would disturb no more than two acres of land per day; therefore, the LST thresholds for two acres were utilized for the construction LST analysis. The closest sensitive uses to the project site are the residential uses located adjacent to all four quadrants of the Brookhurst Street/Adams Avenue intersection. Thus, the most conservative LST threshold distance of 25 meters was utilized.[1] Table 5.3-7, *Summary of Localized Significance of Construction Emissions*, shows the construction-related emissions of NO_X, CO, PM_{10}, and $PM_{2.5}$ compared to the SCAQMD screening values for North Coastal Orange County (Source Receptor Area 18).

Table 5.3-7
Summary of Localized Construction Emissions

Construction Phase	Emissions (pounds per day)[1]			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Unmitigated On-Site Emissions[3]	35.52	27.73	7.86	5.06
Localized Significance Threshold[2]	*131*	*962*	*7*	*5*
Is Threshold Exceeded?	***No***	***No***	***Yes***	***Yes***
Mitigated On-Site Emissions[3, 4]	35.52	27.73	4.01	2.98
Localized Significance Threshold[2]	*131*	*962*	*7*	*5*
Is Threshold Exceeded?	***No***	***No***	***No***	***No***

Note:
1. Emissions calculated using the CalEEMod model. The worst-case maximum daily on-site emissions are reported.
2. The Localized Significance Threshold was determined using Appendix C of the SCAQMD *Final Localized Significant Threshold Methodology* guidance document for pollutants NO_X, CO, PM_{10}, and $PM_{2.5}$.
3. The highest daily on-site emissions reported are associated with the grading phase.
4. The reduction/credits for construction emission mitigations are based on mitigation included in the CalEEMod model and as required by the SCAQMD (Rule 403). The mitigation includes the following: replace ground cover on disturbed areas quickly, water exposed surfaces two times daily, and proper loading/unloading of mobile and other construction equipment.

As shown in Table 5.3-7, construction emissions would not exceed the SCAQMD localized thresholds during construction. Therefore, project construction would not expose the closest sensitive receptors to substantial pollutant concentrations and a less than significant impact would occur in this regard.

Conclusion

In accordance with the SCAQMD recommendations, CalEEMod was utilized to model construction emissions for ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$. As indicated in Table 5.3-6 and Table 5.3-7, construction related emissions would not exceed the SCAQMD's regional or localized thresholds of significance with adherence to SCAQMD Rule 403. Although the thresholds have not been exceeded, Mitigation Measure AQ-1 has been recommended to ensure compliance with applicable

[1] The closest receptor distance on the mass rate LST look-up tables is 25 meters. According to page 3-3 of the SCAQMD *Final Localized Significance Threshold Methodology* (revised October 2009), projects with boundaries located closer than 25 meters to the nearest receptor should use the 25 meter LST values.

SCAQMD rules and regulations (i.e., Rule 402 and 403). Construction related air emissions would be less than significant.

Mitigation Measures:

AQ-1 Prior to issuance of any Grading Permit, the City Engineer shall confirm that the Grading Plan and specifications stipulate that, in compliance with SCAQMD Rule 403, excessive fugitive dust emissions shall be controlled by regular watering or other dust prevention measures, as specified in the SCAQMD's Rules and Regulations. In addition, SCAQMD Rule 402 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off-site. Implementation of the following measures would reduce short-term fugitive dust impacts on nearby sensitive receptors:

- All active portions of the construction site shall be watered every three hours during daily construction activities and when dust is observed migrating from the project site to prevent excessive amounts of dust;
- Pave or apply water every three hours during daily construction activities or apply non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas. More frequent watering shall occur if dust is observed migrating from the site during site disturbance;
- Any on-site stockpiles of debris, dirt, or other dusty material shall be enclosed, covered, or watered twice daily, or non-toxic soil binders shall be applied;
- All grading and excavation operations shall be suspended when wind speeds exceed 25 miles per hour;
- Disturbed areas shall be replaced with ground cover or paved immediately after construction is completed in the affected area;
- Track-out devices such as gravel bed track-out aprons (3 inches deep, 25 feet long, 12 feet wide per lane and edged by rock berm or row of stakes) shall be installed to reduce mud/dirt trackout from unpaved truck exit routes. Alternatively a wheel washer shall be used at truck exit routes;
- On-site vehicle speed shall be limited to 15 miles per hour;
- All material transported off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust prior to departing the job site; and
- Reroute construction trucks away from congested streets or sensitive receptor areas.

Level of Significance: Less Than Significant Impact with Mitigation Incorporated.

LONG-TERM (OPERATIONAL) AIR EMISSIONS

● LONG-TERM OPERATION OF THE PROPOSED PROJECT WOULD NOT RESULT IN SIGNIFICANT AIR POLLUTANT EMISSIONS IMPACTS.

Impact Analysis: Unlike land development projects (i.e., residential, commercial, or retail) transportation-related projects do not directly create vehicle trips. Instead, transportation-related projects typically affect traffic flow along the local and regional transportation networks. Potential transportation-related regional emissions impacts and intersection CO hotspot impacts that could occur as a result of project implementation are discussed below.

Operational Impacts

Traffic Volumes

Although the project involves an intersection improvement and does not propose a trip-generated land use, the operational, transportation-related air quality emissions associated with the existing and forecast year 2030 with and without project scenarios have been analyzed. Table 5.3-8, *Existing and Forecast Traffic Volumes*, depicts the existing and future daily traffic volumes and vehicle miles traveled (VMT) within the project limits, which were obtained from the *Traffic Impact Analysis*. As depicted in Table 5.3-8, there is no change in ADT or daily VMT between the future no build and build scenarios due to the fact that the project is not a trip-generating land use. Similarly, the increase in ADT and daily VMT between the existing and forecast year 2030 scenarios is attributed to projected growth in the area, and is not a result of project implementation.

Table 5.3-8
Existing and Forecast Traffic Volumes

Location	ADT			Daily VMT		
	Existing	Forecast Year 2030 Without Project Conditions	Forecast Year 2030 With Project Conditions	Existing	Forecast Year 2030 Without Project Conditions	Forecast Year 2030 With Project Conditions
Brookhurst Street						
North of Adams Avenue	32,260	39,900	39,900	4,516	5,586	5,586
South of Adams Avenue	30,340	37,800	37,800	3,944	4,914	4,914
Adams Avenue						
East of Brookhurst Street	33,800	51,800	51,800	7,098	10,878	10,878
West of Brookhurst Street	30,560	44,700	44,700	6,723	9,834	9,834
TOTAL	--	--	--	22,282	31,212	31,212
ADT = Average Daily Traffic; VMT = Vehicle Miles Traveled						
Source: RBF Consulting, *Brookhurst Street/Adams Avenue Improvement Project Traffic Impact Analysis*, April 11, 2013.						

Particulate Matter Hotspots

Based on correspondence with the City[2], conservatively, approximately 10 percent of the traffic along each segment of the intersection consists of heavy truck traffic, and is not anticipated to increase during the forecast year 2030 conditions. The amount of truck traffic along roadways that correlates to particulate matter hotspots would be diesel trucks comprising 10,000 trips or more of traffic along roadways may represent a particulate matter concern, according to the EPA's March 10, 2006 Final Rule[3]. As the truck traffic along each segment of the Brookhurst Street/Adams Avenue intersection is conservatively estimated to be 10 percent, truck volumes would range between 3,780 and 5,180, which is less than 10,000 truck trips. Additionally, the percentage of trucks traveling through the intersection would not change between existing conditions and forecast year 2030 conditions. Therefore, the project would not result in substantial truck traffic or particulate matter hotspots. Impacts in this regard are less than significant.

Level of Service

As seen in Table 5.3-9, *Study Intersection LOS Summary*, implementation of the proposed project would alleviate traffic congestion, increase efficiency, and improve LOS at the Brookhurst Street/Adams Avenue intersection during both existing conditions and forecast year 2030 conditions. An improvement in LOS directly correlates to improvements in air quality emissions from motor vehicles. Free-flowing traffic results in fewer emissions since idling time at the intersection is reduced. Therefore, the project would result in beneficial impacts to the Brookhurst Street/Adams Avenue intersection.

Table 5.3-9
Study Intersection LOS Summary

Intersection	Existing Conditions		Existing Plus Project Conditions		Forecast Year 2030 Without Project Conditions		Forecast Year 2030 With Project Conditions	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
	V/C – LOS	V/C – LOS	V/C – LOS	V/C – LOS	V/C – LOS	V/C – LOS	V/C – LOS	V/C – LOS
Brookhurst Street/Adams Avenue	0.89 – D	0.76 – C	0.70 – B	0.66 – B	**1.03 – F**	**1.05 – F**	0.79 – C	0.88 – D

Notes:
Bold = Deficient; V/C = Volume to Capacity Ratio; LOS = Level of Service

Source: RBF Consulting, *Brookhurst Street/Adams Avenue Improvement Project Traffic Impact Analysis*, April 11, 2013.

[2] Based on correspondence with Bill Janusz, Principal Civil Engineer, at the City of Huntington Beach, via email dated April 12, 2013.

[3] U.S. Environmental Protection Agency, http://www.epa.gov/otaq/stateresources/transconf/conf-regs-PMhotspot.htm, accessed April 25, 2013.

Emissions Estimates

The existing and forecast year 2030 without and with project scenario traffic volumes and VMT estimates have been utilized in conjunction with EMFAC2011 model to estimate air quality emissions. As seen in Table 5.3-10, *Existing and Forecast Air Quality Emissions*, the forecast 2030 without and with project scenarios show an overall decrease in emissions from the existing scenario. Although the overall ADT and VMT in the area increase between existing and forecast year 2030 scenarios, the reduction is attributed to improved emissions factors. Although the project proposes intersection improvements and is not a trip-generating land use project, the forecast year 2030 emissions as well as the net emissions have been compared to the SCAQMD regional significance thresholds for informational purposes. As shown in Table 5.3-10, neither the forecast year scenarios nor the net emissions would exceed the SCAQMD thresholds.

Conclusion

As discussed above, the proposed project would result in a beneficial impact to the project area. The project would result in improvements to the Brookhurst Street/Adams Avenue intersection which would alleviate traffic congestion, increase efficiency, and improve LOS at the intersection during both existing conditions and forecast year 2030 conditions. As the project does not propose new land uses or a change in land uses, the project would not directly generate any traffic trips or operational air quality emissions. However, the emissions associated with general growth in the area have been analyzed and as noted previously, would not result in substantial emissions. Impacts in this regard are less than significant.

Table 5.3-10
Existing and Forecast Air Quality Emissions

Scenario	Pollutant (lbs/day)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Existing	6.51	39.47	154.47	0.23	0.86	0.79
Forecast Year 2030 Without Project	1.92	11.56	53.32	0.32	0.31	0.29
Forecast Year 2030 With Project	1.92	11.56	53.32	0.32	0.31	0.29
Net Emissions Between the Existing and Both the Forecast Year 2030 Without and With Project Scenarios	*-4.59*	*-27.91*	*-101.15*	*0.09*	*-0.55*	*-0.50*
SCAQMD Significance Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
Thresholds Exceeded?	***No***	***No***	***No***	***No***	***No***	***No***

Source: South Coast Air Quality Management District, *CEQA Air Quality Handbook,* November 1993.

Intersection Carbon Monoxide Hotspots

The SCAQMD requires a quantified assessment of CO hotspots when a project increases the volume to capacity ratio (also called the intersection capacity utilization) by 0.02 (two percent) for any intersection with an existing level of service (LOS) D or worse. Because traffic congestion is highest at intersections where vehicles queue and are subject to reduced speeds, these hotspots are typically produced at intersection locations.

According to the project's *Traffic Impact Analysis*, the Brookhurst Street/Adams Avenue intersection currently operates at acceptable LOS D during the AM peak hour and acceptable LOS C during the PM peak hour. However, with project implementation, under the 2030 with project scenario, the study intersection would operate at acceptable LOS C during the AM peak hour and acceptable LOS D during the PM peak hour. However, as the volume to capacity ratio during the p.m. peak hour would be increased by more than two percent, a CO hotspot analysis was performed for the intersection. Table 5.3-11, *Carbon Monoxide Levels at the Study Intersection*, provides a CO hotspot analysis for this intersection.

Table 5.3-11
Carbon Monoxide Levels at the Study Intersection

Intersection	1-Hour CO (ppm) [1]		8-Hour CO (ppm)	
	1-Hour Standard[2]	Future Plus Project	8-Hour Standard[3]	Future Plus Project
Brookhurst Street/Adams Avenue	20 ppm	3.30	9 ppm	2.84

Notes:
1 – As measured at a distance of 10 feet from the corner of the intersection predicting the highest value. Presented 1-hour CO concentrations include a background concentration of 2.91 ppm. Eight-hour concentrations are based on a persistence of 0.86 of the 1-hour concentration.
2 – The State 1-hour standard is 20 ppm. The Federal standard is 35 ppm. The most stringent standard is reflected in the Table.
3 – The State 8-hour and Federal 8-hour standard is 9 ppm.

The projected traffic volumes were modeled using the BREEZE ROADS dispersion model. The resultant values were then added to an ambient concentration. A receptor height of 1.8 meters was used in accordance with the EPA's recommendations. The calculations assume a meteorological condition of almost no wind (0.5 meters/second), a flat topological condition between the source and the receptor and a mixing height of 1,000 meters. A standard deviation of five degrees was used for the deviation of wind direction. The suburban land classification was used for the aerodynamic roughness coefficient. This follows the BREEZE ROADS user's manual definition of suburban as "regular coverage with large obstacles, open spaces roughly equal to obstacle heights, villages, mature forests." All of the above parameters are based on the standards stated in the *Transportation Project-Level Carbon Monoxide (CO Protocol)*, December 1997.

For the purposes of this analysis, the ambient concentration used in the modeling was the highest one-hour measurement from the past three years of SCAQMD monitoring data at the Costa Mesa Monitoring Station. Actual future ambient CO levels may be lower due to emissions control strategies that would be implemented between now and the project buildout date. Due to changing meteorological conditions over an eight-hour period which diffuses the local CO concentrations, the eight-hour CO level concentrations have been found to be typically proportional and lower than the one-hour concentrations, where it is possible to have stable atmospheric conditions last for the entire hour. Therefore, eight-hour CO levels were calculated using the locally derived persistence factor as stated in the CO Protocol. The local persistence factor is derived by calculating the highest ratio of eight-hour to one-hour maximum locally measured CO concentrations from the most recent three years of data. Year 2010 has the highest eight-hour to one-hour ratio of 0.86.

As indicated in Table 5.3-11, CO concentrations at the study intersection requiring a CO hotspot analysis would be well below the state and federal standards. The modeling results are compared to

the CAAQS for CO of 9 ppm on an 8-hour average and 20 ppm on a 1-hour average. Neither the 1-hour average nor the 8-hour average would be equaled or exceeded. Impacts in regards to intersection CO hot spots would be less than significant.

Mitigation Measures: No mitigation measures are required.

Level of Significance: Less Than Significant Impact.

AIR QUALITY PLAN CONSISTENCY

- **IMPLEMENTATION OF THE PROPOSED PROJECT WOULD NOT RESULT IN A CONFLICT WITH APPLICABLE AIR QUALITY PLANS UPON IMPLEMENTATION OF IDENTIFIED MITIGATION.**

Impact Analysis: On December 7, 2012, the SCAQMD Governing Board approved the *2012 AQMP*, which outlines its strategies for meeting the NAAQS for $PM_{2.5}$ and ozone. The *2012 AQMP* will then be forwarded to CARB for inclusion into the California SIP in January 2013. Subsequently, the *2012 AQMP* will be submitted to the EPA as the 24-hour $PM_{2.5}$ SIP addressing the 2006 $PM_{2.5}$ NAAQS and as a limited update to the approved 8-hour ozone SIP. The 1-hour ozone attainment demonstration and VMT emissions offset demonstration will also be submitted through CARB to the EPA. According to the SCAQMD's *2012 AQMP*, two main criteria must be addressed.

Criterion 1:

With respect to the first criterion, SCAQMD methodologies require that an air quality analysis for a project include forecasts of project emissions in relation to contributing to air quality violations and delay of attainment.

a) Would the project result in an increase in the frequency or severity of existing air quality violations?

Since the consistency criteria identified under the first criterion pertain to pollutant concentrations, rather than to total regional emissions, an analysis of a project's pollutant emissions relative to localized pollutant concentrations is used as the basis for evaluating project consistency. As previously discussed, localized concentrations of CO, NO_X, PM_{10}, and $PM_{2.5}$ would be less than significant during project construction and operations. Therefore, the proposed project would not result in an increase in the frequency or severity of existing air quality violations. Because ROGs are not a criteria pollutant, there is no ambient standard or localized threshold for ROGs. Due to the role ROG plays in ozone formation, it is classified as a precursor pollutant and only a regional emissions threshold has been established.

b) Would the project cause or contribute to new air quality violations?

As previously discussed, operations of the proposed project would result in less than significant air quality emissions. Therefore, the proposed project would not have the potential to cause or affect a violation of the ambient air quality standards.

c) Would the project delay timely attainment of air quality standards or the interim emissions reductions specified in the AQMP?

The proposed project would result in less than significant impacts with regard to localized concentrations during project operations. As such, the proposed project would not delay the timely attainment of air quality standards or *2012 AQMP* emissions reductions.

Criterion 2:

With respect to the second criterion for determining consistency with SCAQMD and SCAG air quality policies, it is important to recognize that air quality planning within the Basin focuses on attainment of ambient air quality standards at the earliest feasible date. Projections for achieving air quality goals are based on assumptions regarding population, housing, and growth trends. Thus, the SCAQMD's second criterion for determining project consistency focuses on whether or not the proposed project exceeds the assumptions utilized in preparing the forecasts presented in the *2012 AQMP*. Determining whether or not a project exceeds the assumptions reflected in the *2012 AQMP* involves the evaluation of the three criteria outlined below. The following discussion provides an analysis of each of these criteria.

a) Would the project be consistent with the population, housing, and employment growth projections utilized in the preparation of the AQMP?

In the case of the *2012 AQMP*, three sources of data form the basis for the projections of air pollutant emissions: the City's *General Plan*, SCAG's *Growth Management* Chapter of the *Regional Comprehensive Plan* (RCP), and SCAG's *2012-2035 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS). The RTP/SCS also provides socioeconomic forecast projections of regional population growth. The City's *General Plan* designates Brookhurst Street and Adams Avenue as Major Arterials. The project would also require right-of-way (ROW) acquisition from properties with the following land use designations: Commercial General (CG-F1), and Residential Low Density (RL-7). The project involves improvements to the Brookhurst Street/Adams Avenue intersection, and would not result in any new land uses. Therefore, the proposed project is considered consistent with the *General Plan* (also refer to Section 5.1, *Land Use and Relevant Planning*). Thus, the proposed project is consistent with the types, intensity, and patterns of land use envisioned for the site vicinity in the RCP. The population, housing, and employment forecasts, which are adopted by SCAG's Regional Council, are based on the local plans and policies applicable to the City; these are used by SCAG in all phases of implementation and review. Additionally, as the SCAQMD has incorporated these same projections into the *2012 AQMP*, it can be concluded that the proposed project would be consistent with the projections.

b) Would the project implement all feasible air quality mitigation measures?

The proposed project would result in less than significant air quality impacts. Compliance with emission reduction measures identified by the SCAQMD (refer to Mitigation Measure AQ-1) would be required as identified above. As such, the proposed project meets this AQMP consistency criterion.

c) Would the project be consistent with the land use planning strategies set forth in the AQMP?

The proposed project would serve to implement various City of Huntington Beach and SCAG policies. The proposed project is located within a developed portion of the City and would relieve existing and future traffic congestion.

In conclusion, the determination of *2012 AQMP* consistency is primarily concerned with the long-term influence of a project on air quality in the Basin. The proposed project would not result in a long-term impact on the region's ability to meet State and Federal air quality standards. Also, the proposed project would be consistent with the goals and policies of the AQMP for control of fugitive dust. As discussed above, the proposed project's long-term influence would also be consistent with the SCAQMD and SCAG's goals and policies and is, therefore, considered consistent with the *2012 AQMP*.

Mitigation Measures: Refer to Mitigation Measure AQ-1.

Level of Significance: Less Than Significant Impact with Mitigation Incorporated.

5.3.5 CUMULATIVE IMPACTS

SHORT-TERM CUMULATIVE IMPACTS

- **SHORT-TERM CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE PROPOSED PROJECT AND RELATED CUMULATIVE PROJECTS WOULD NOT RESULT IN SIGNIFICANT SHORT-TERM AIR QUALITY IMPACTS UPON IMPLEMENTATION OF IDENTIFIED MITIGATION.**

Impact Analysis: The SCAQMD neither recommends quantified analyses of cumulative construction or operational emissions, nor does it provide separate methodologies or thresholds of significance to be used to assess cumulative construction impacts. Instead, the SCAQMD recommends that a project's potential contribution to cumulative impacts should be assessed using the same significance criteria as those for project-specific impacts. Therefore, individual development projects that generate construction-related or operational emissions that exceed the SCAQMD recommended daily thresholds for project-specific impacts would also cause a cumulative considerable increase in emissions for those pollutants for which the Basin is nonattainment.

Of the projects that have been identified within the proposed project study area, these projects have not been built or are currently under construction. Since the City has no control over the timing or sequencing of the related projects, any quantitative analysis to ascertain the daily construction emissions that assumes multiple, concurrent construction would be speculative. Furthermore, the proposed project's emissions are below the SCAQMD's thresholds for localized and regional pollutants, and would not substantially contribute to the nearest cumulative project which is located 0.37 miles northeast of the project site.

With respect to the proposed project's construction-period, air quality emissions, and cumulative Basin-wide conditions, the SCAQMD has developed strategies to reduce criteria pollutant emissions outlined in the *2012 AQMP* pursuant to Federal Clean Air Act mandates. As such, the proposed project would comply with SCAQMD Rules 402 and 403 requirements, and implement all feasible

mitigation measures. In addition, the proposed project would comply with adopted *2012 AQMP* emissions control measures. Per SCAQMD rules and mandates, as well as the CEQA requirement that significant impacts be mitigated to the extent feasible, these same requirements (i.e., Rule 403 compliance, the implementation of all feasible mitigation measures, and compliance with adopted *2012 AQMP* emissions control measures) would also be imposed on construction projects throughout the Basin, which would include each of the related projects mentioned above.

As the project-related construction emissions have been concluded to be less than significant, it can be reasonably inferred that the project-related construction activities, in combination with those from other projects in the area, would not deteriorate the local air quality and would not result in a cumulative construction-related impact. Therefore, with the implementation of Mitigation Measure AQ-1, a less than significant cumulative construction air quality impact would result.

Mitigation Measures: Refer to Mitigation Measure AQ-1.

Level of Significance: Less Than Significant Impact with Mitigation Incorporated.

LONG-TERM CUMULATIVE IMPACTS

- **LONG-TERM OPERATION OF ASSOCIATED WITH THE PROPOSED PROJECT AND RELATED CUMULATIVE PROJECTS WOULD NOT RESULT IN SIGNIFICANT LONG-TERM AIR QUALITY IMPACTS.**

Impact Analysis: As previously stated, the SCAQMD neither recommends quantified analyses of cumulative construction or operational emissions, nor does it provide separate methodologies or thresholds of significance to be used to assess cumulative construction or operational impacts. However, if individual development projects generate operational emissions that exceed the SCAQMD recommended daily thresholds for project-specific impacts, they would also cause a cumulative considerable increase in emissions for those pollutants for which the Basin is nonattainment.

According to Table 5.3-10, the forecast year 2030 without and with project conditions would not exceed the SCAQMD's thresholds of significance for regional criteria pollutants. Additionally, the proposed project would not exceed the mobile source (CO hotspots) standards; refer to Table 5.3-11. Therefore, cumulative operational impacts associated with the proposed operation of the project would be less than significant for regional and localized emissions.

Mitigation Measures: No mitigation measures are required.

Level of Significance After Mitigation: Less than Significant Impact.

5.3.6 SIGNIFICANT UNAVOIDABLE IMPACTS

No unavoidable significant impacts related to air quality emissions have been identified with implementation of the recommended mitigation measure.

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